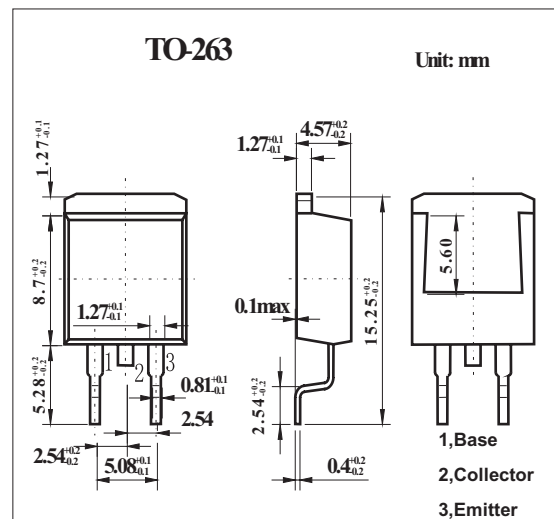


## NPN Triple Diffused Planar Silicon Transistor

## 2SC4600

## ■ Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4600-applied equipment.
- High density surface mount applications.
- Small size of 2SC4600-applied equipment.
- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	800	V
Collector-emitter voltage	$V_{CE0}$	500	V
Emitter-base voltage	$V_{EB0}$	7	V
Collector current (DC)	$I_C$	5	A
Collector current (Pulse) *	$I_{CP}$	10	
Base current	$I_B$	2	A
Collector power dissipation $T_a = 25^\circ\text{C}$ $T_C = 25^\circ\text{C}$	$P_C$	1.65	W
		50	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

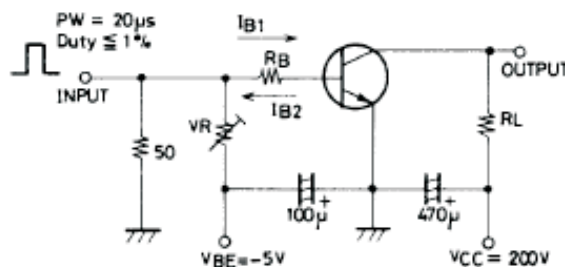
\*  $PW \leq 300\text{ms}$ , duty cycle  $\leq 10\%$

## 2SC4600

■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 500\text{ V}, I_E = 0$			10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$			10	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 0.6\text{ A}$	15		50	
		$V_{CE} = 5\text{ V}, I_C = 3\text{ A}$	8			
Gain-Bandwidth product	$f_T$	$V_{CE} = 10\text{ V}, I_C = 0.6\text{ A}$		18		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$		80		pF
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 0.6\text{ A}$			1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3\text{ A}, I_B = 0.6\text{ A}$			1.5	V
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_E = 0$	800			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 5\text{ mA}, R_{BE} = \infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{ mA}, I_C = 0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CE(SUS)}$	$I_C = 5\text{ A}, I_{B1} = 1\text{ A}, L = 50\mu\text{H}$	500			V
		$I_C = 2.5\text{ A}, I_{B1} = -I_{B2} = 1\text{ A}, L = 1\text{ mH}$	500			
Turn-ON time	$t_{on}$	$I_C = 4\text{ A}, I_{B1} = 0.8\text{ A}, I_{B2} = -1.6\text{ A}, R_L = 50\Omega, V_{CC} = 200\text{ V}$			0.5	$\mu\text{s}$
Storage time	$t_{stg}$				3.0	
Fall time	$t_f$				0.3	

## ■ Switching Time Test Circuit

Unit (resistance :  $\Omega$ , capacitance : F)■  $h_{FE}$  Classification

Rank	L	M	N
$h_{FE}$	15 to 30	20 to 40	30 to 50